

1 **IN THE CLAIMS**

2
3 --1. **(Currently Amended)** An apparatus for transporting ions from an ionization source
4 region to a first vacuum [pressure] region within a mass spectrometer, wherein said apparatus
5 comprises:

6 first and second capillary sections each having a channel therethrough having an inlet end
7 and an outlet end; and

8 a union having first and second openings, said union configured to removably interface
9 said outlet end of said first capillary section to said inlet end of said second capillary section such
10 that ions may be delivered from said source region into said first vacuum ~~pressure~~-region through
11 said first and second capillary sections;

12 wherein said union comprises [a sealing mechanism for sealing the connection between
13 said ionization] means for providing a substantially airtight seal between said source region and
14 said first vacuum ~~pressure~~ region such that a low pressure is substantially maintained within said
15 first vacuum region upon decoupling of said first capillary section from said second capillary
16 section [of said mass spectrometer].

17
18 2. **(Original)** An apparatus according to claim 1, wherein said first section comprises a channel
19 having a helical structure.

20
21 3. **(Original)** An apparatus according to claim 1, wherein said union comprises means for
22 removably securing said ends of said first and second sections.

1 4. **(Original)** An apparatus according to claim 1, wherein said union comprises means for
2 providing an airtight seal between said ends of said first and second sections within said union.

3
4 5. **(Currently Amended)** An apparatus according to claim 1, wherein said inlet [ends] and
5 said outlet ends of said second section comprise conductive end caps.

6
7 6. **(Cancelled)**

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9 7. **(Currently Amended)** An apparatus according to claim 1, wherein said ionization source
10 is selected from the group consisting of an atmospheric pressure ionization (API) source, an
11 electrospray ionization source, a pneumatic assisted electrospray source, an electron impact
12 source, a chemical ionization source, a matrix-assisted laser desorption/ionization source, a
13 plasma desorption source, and a liquid chromatography source..

14
15 8 - 14. **(Cancelled)**

16
17 15. **(Original)** An apparatus according to claim 1, wherein said apparatus is used to multiplex
18 sample materials.

1 **16. (Currently Amended)** A system for performing mass spectrometric analysis, wherein said
2 system comprises:

3 at least one ion source for producing ions in a source region;

4 a mass spectrometer having an inlet orifice configured to accept the ions; and

5 a multiple part capillary device configured to provide a removable interface

6 between said [ion] source region and a first vacuum region of said mass

7 spectrometer, said multiple part capillary device comprising at least a first

8 capillary member and a second capillary member, wherein said first

9 capillary member removably couples in coaxial alignment with said

10 second capillary member at said removable interface;

11 wherein said removable interface substantially maintains pressure conditions of said first
12 vacuum region of mass spectrometer upon decoupling of said first capillary member from said
13 second capillary member.

14
15 **17. (Currently Amended)** A system according to claim 16, wherein said multiple part
16 capillary device comprises:

17 ~~a first capillary section including an inlet orifice for accepting ions from said ion~~
18 ~~source;~~

19 ~~a union for connecting to at least said first capillary section;~~

20 ~~a second capillary section connected to said union; and~~

21 ~~a sealing mechanism~~ means for sealing said removable interface between said ion
22 source and said mass spectrometer.

1 18. **(Currently Amended)** A system according to claim ~~[[17]]~~ 16, wherein at least one of said
2 first and second capillary ~~sections~~ members comprises a channel having a helical structure.

3
4 19. **(Currently Amended)** A system according to claim ~~[[17]]~~ 16, wherein at least one of said
5 first and second capillary ~~sections~~ members is insulating.

6
7 20. **(Currently Amended)** A system according to claim ~~[[17]]~~ 16, wherein at least one of said
8 first and second capillary ~~sections~~ members is metallic.

9
10 21. **(Currently Amended)** A system according to claim ~~[[17]]~~ 16, wherein at least one of said
11 first and second capillary ~~sections~~ members comprises a flexible tube.

12
13 22. **(Currently Amended)** A system according to claim ~~[[17]]~~ 16, wherein at least one of said
14 first and second capillary ~~sections~~ members comprises a heated capillary tube.

15
16 23. **(Original)** A system according to claim 16, wherein said at least one ion source is selected
17 from the group consisting of an electrospray ion source, an atmospheric pressure ionization
18 source, a matrix-assisted laser desorption/ionization ion source, a pneumatic assisted electrospray
19 source, an electron impact source, a chemical ionization source, a plasma desorption source and
20 a liquid chromatography source.

1 24. **(Original)** A system according to claim 16, wherein said mass spectrometer is selected from
2 the group consisting of a quadrupole mass spectrometer, a time-of-flight mass spectrometer, an
3 ion trap mass spectrometer, an ion cyclotron resonance mass spectrometer, and a magnetic sector
4 mass spectrometer.

5
6 25. **(Currently Amended)** A method for performing mass analyses using at least one mass
7 spectrometer, wherein said method comprises the steps of:

8 generating ions in an ion source region;

9 ~~removably interfacing providing a multiple part capillary having a removable~~
10 ~~interface between~~ said ion source region and a first vacuum ~~pressure~~
11 region of said mass spectrometer with a multiple part capillary, wherein
12 said multiple part capillary comprises first and second capillary members
13 ~~while maintaining pressure conditions of said first pressure region of said~~
14 ~~mass spectrometer;~~

15 delivering said ions from said ion source region into [[a]] said first vacuum
16 ~~pressure region of said at least one mass spectrometer~~ via said multiple
17 part capillary ~~device~~; and

18 performing at least one mass analysis on said ions in said at least one mass
19 spectrometer;

20 wherein pressure conditions of said first vacuum region are substantially maintained upon
21 separation of said first and second capillary members of said multiple part capillary.
22

1 26. **(Original)** A method according to claim 25, wherein said ions are generated in said ion
2 source region using a source selected from the group consisting of an electrospray ion source, an
3 atmospheric pressure ionization source, a matrix-assisted laser desorption/ionization ion source,
4 a pneumatic assisted electrospray source, an electron impact source, a chemical ionization
5 source, a plasma desorption source and a liquid chromatography source.

6
7 27. **(Original)** A method according to claim 25, wherein said mass analysis is performed using a
8 mass analyzer selected from the group consisting of a quadrupole mass analyzer, a time-of-flight
9 mass analyzer, an ion trap mass analyzer, an ion cyclotron resonance mass analyzer, and a
10 magnetic sector mass analyzer.

11
12 28. **(New)** A method according to claim 25, wherein at least one of said first and second
13 capillary members is flexible.

14
15 29. **(New)** A method according to claim 25, wherein at least one of said first and second
16 capillary members is a heated capillary tube.

17
18 30. **(New)** A method according to claim 25, wherein at least one of said first and second
19 capillary members is insulating.

20
21 31. **(New)** A method according to claim 25, wherein at least one of said first and second
22 capillary members is metallic.

1 32. (New) A method according to claim 25, wherein said inlet end and said outlet end of said
2 second capillary section comprise conductive end caps.

3
4 33. (New) An apparatus according to claim 1, wherein at least one of said first and second
5 capillary sections is flexible.

6
7 34. (New) An apparatus according to claim 1, wherein at least one of said first and second
8 capillary sections is a heated capillary tube.

9
10 35. (New) An apparatus according to claim 1, wherein at least one of said first and second
11 capillary sections is insulating.

12
13 36. (New) An apparatus according to claim 1, wherein at least one of said first and second
14 capillary sections is metallic.

15
16 37. (New) A system according to claim 16, wherein said inlet end and said outlet end of said
17 second capillary member comprise conductive end caps.

18
19 38. (New) A system according to claim 16, wherein said mass spectrometer is selected from
20 the group consisting of a quadrupole mass spectrometer, a time-of-flight mass spectrometer, an
21 ion trap mass spectrometer, an ion cyclotron resonance mass spectrometer, and a magnetic sector
22 mass spectrometer.